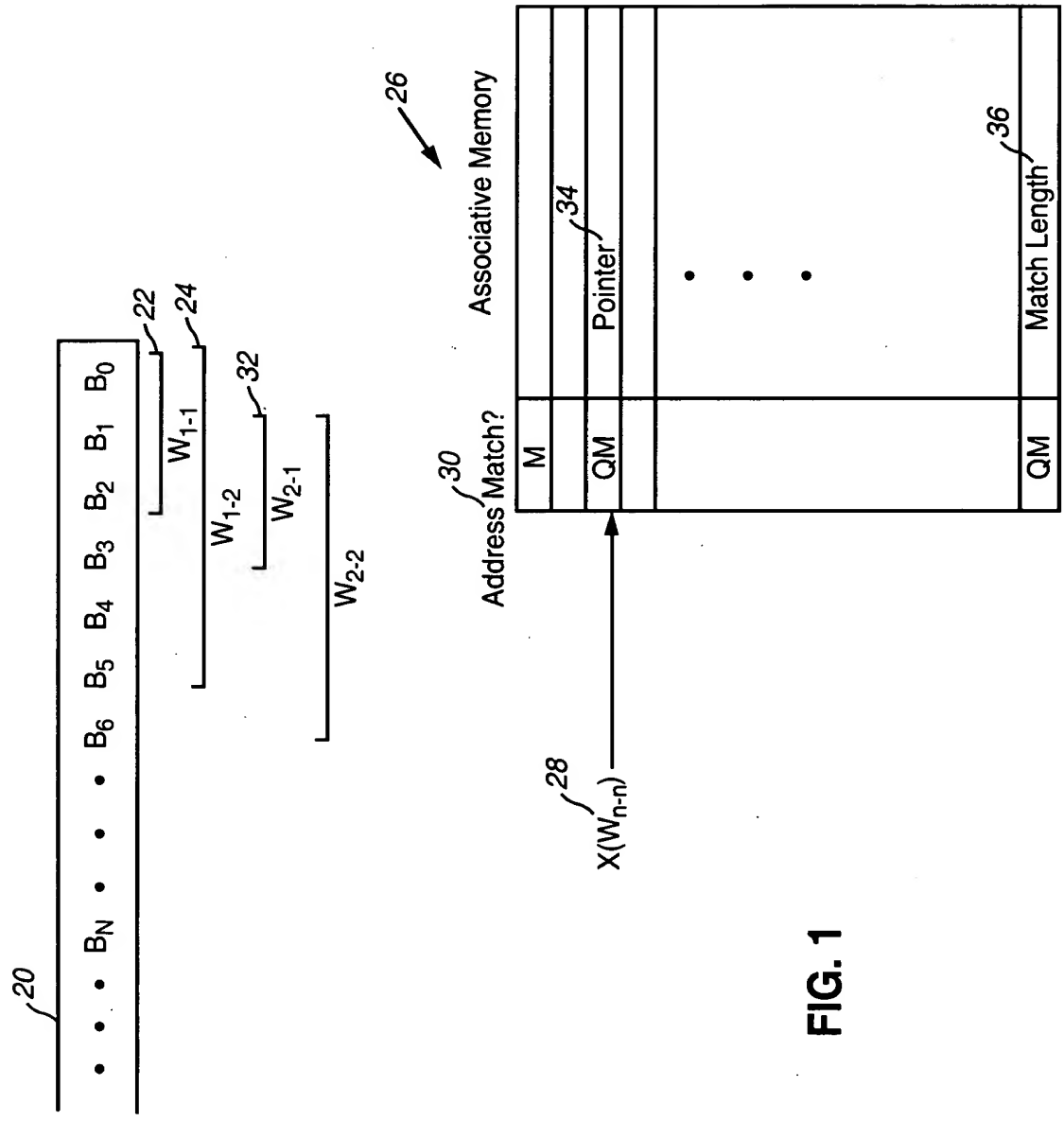
20
B_N • • • B_6 B_5 B_4 B_3 B_2 B_1 B_0
22
24
W_{1-1}
W_{1-2}
32
W_{2-1}
W_{2-2}
26
Associative Memory
30
Address Match?
M
QM
34
Pointer
36
Match Length
QM
28
$X(W_{n-n})$

FIG. 1

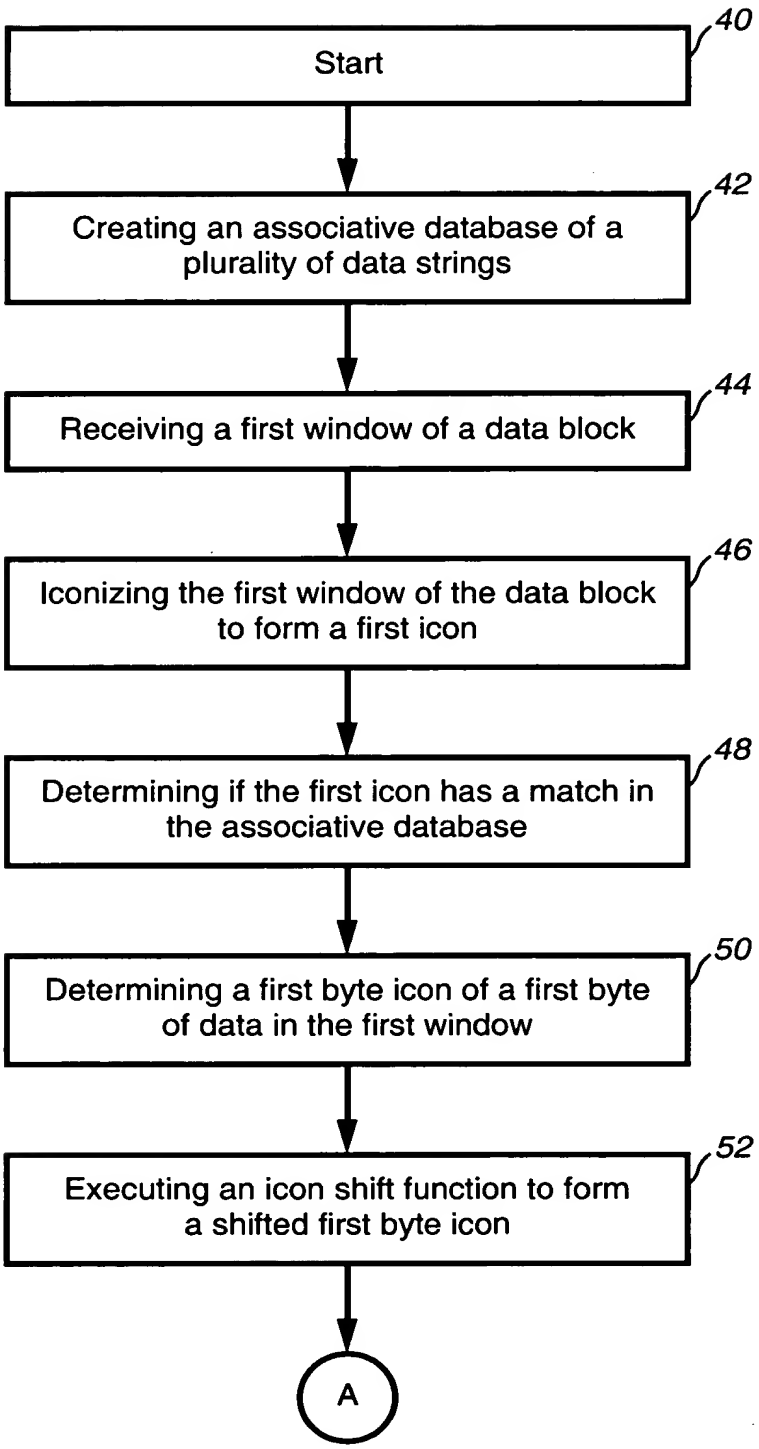

FIG. 2

FOOTPRINTS

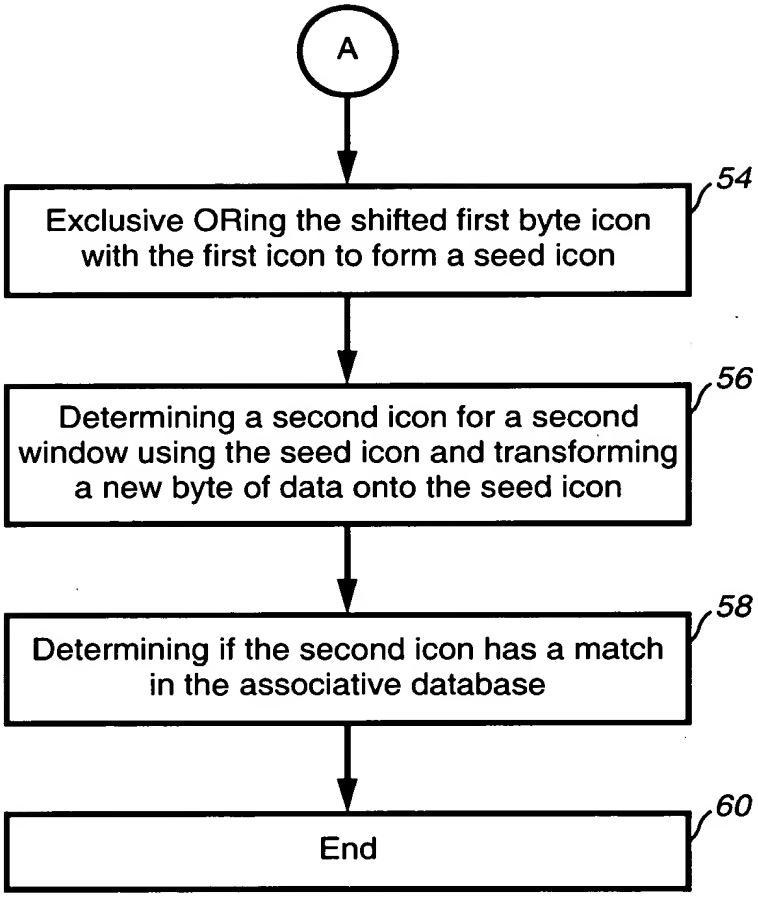
A
Exclusive ORing the shifted first byte icon with the first icon to form a seed icon
54
Determining a second icon for a second window using the seed icon and transforming a new byte of data onto the seed icon
56
Determining if the second icon has a match in the associative database
58
End
60

FIG. 3

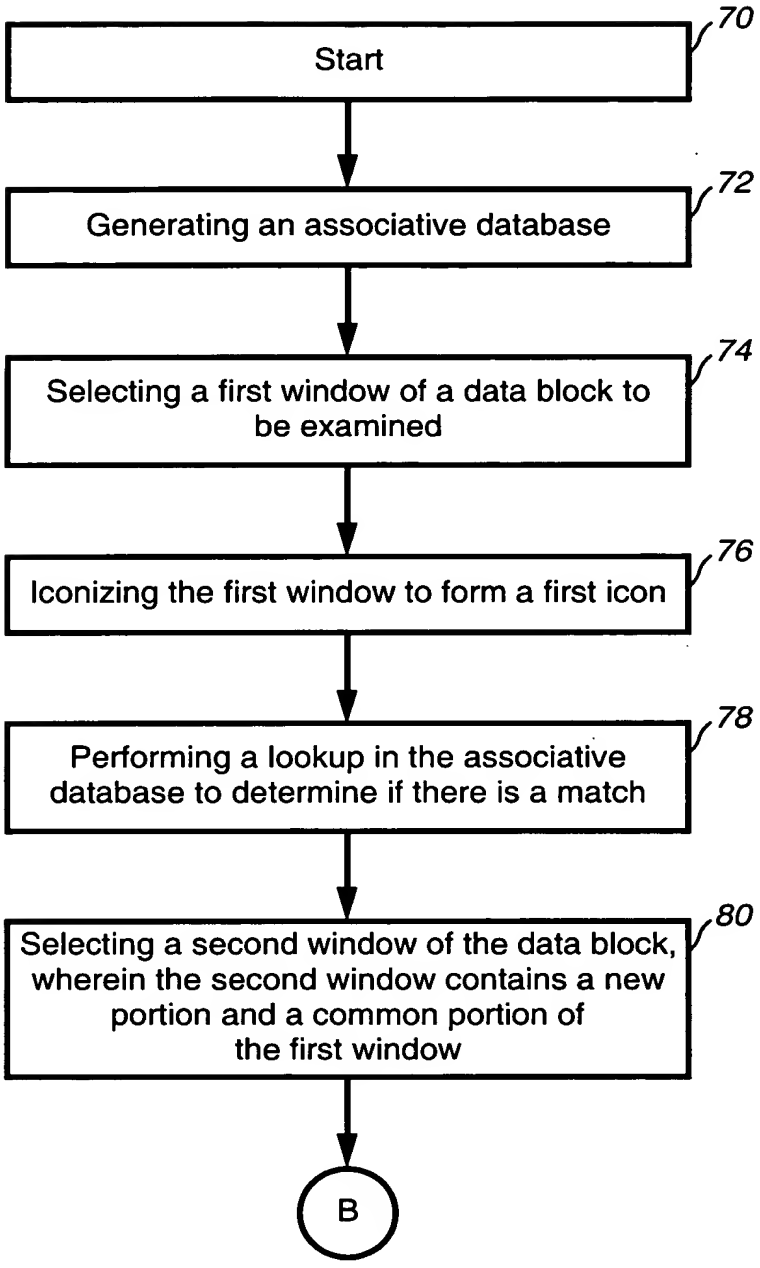

FIG. 4

T0600F T6457560

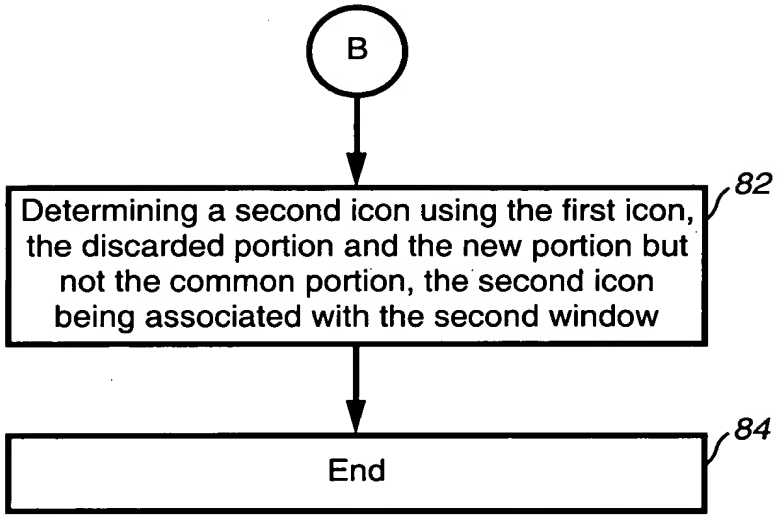

FIG. 5

T0600T-T5thE2660

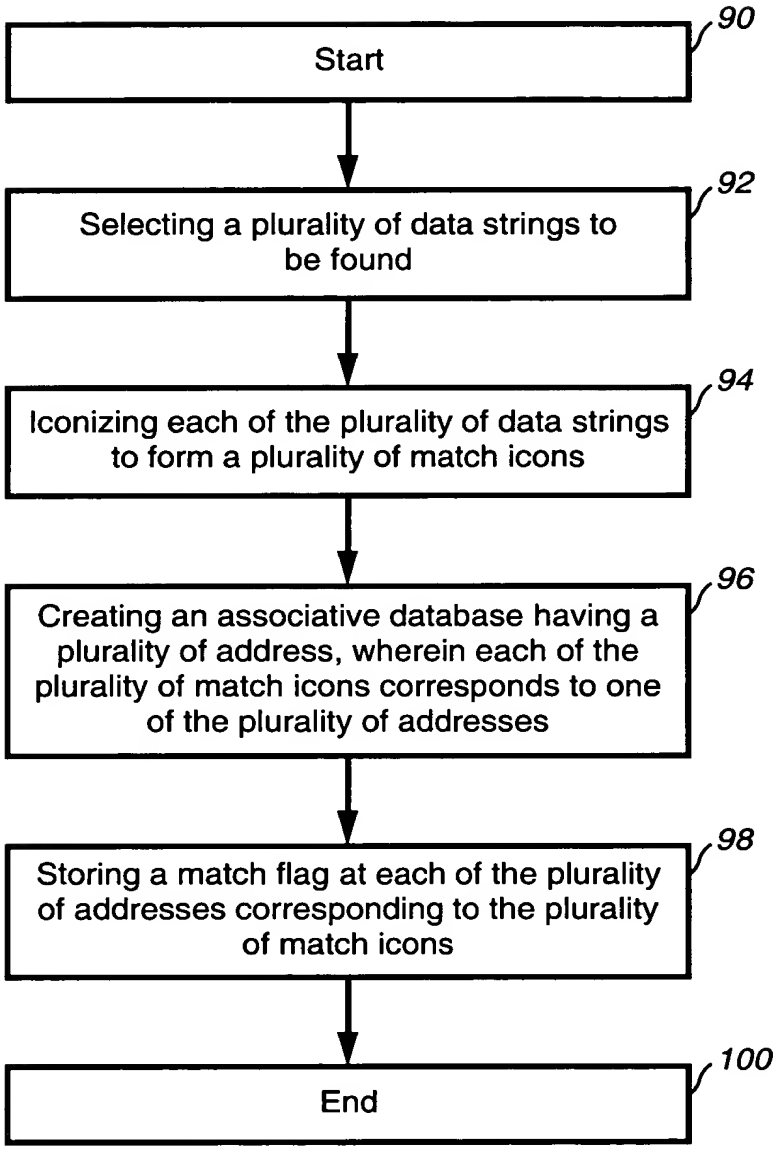
Start
90
Selecting a plurality of data strings to be found
92
Iconizing each of the plurality of data strings to form a plurality of match icons
94
Creating an associative database having a plurality of address, wherein each of the plurality of match icons corresponds to one of the plurality of addresses
96
Storing a match flag at each of the plurality of addresses corresponding to the plurality of match icons
98
End
100

FIG. 6

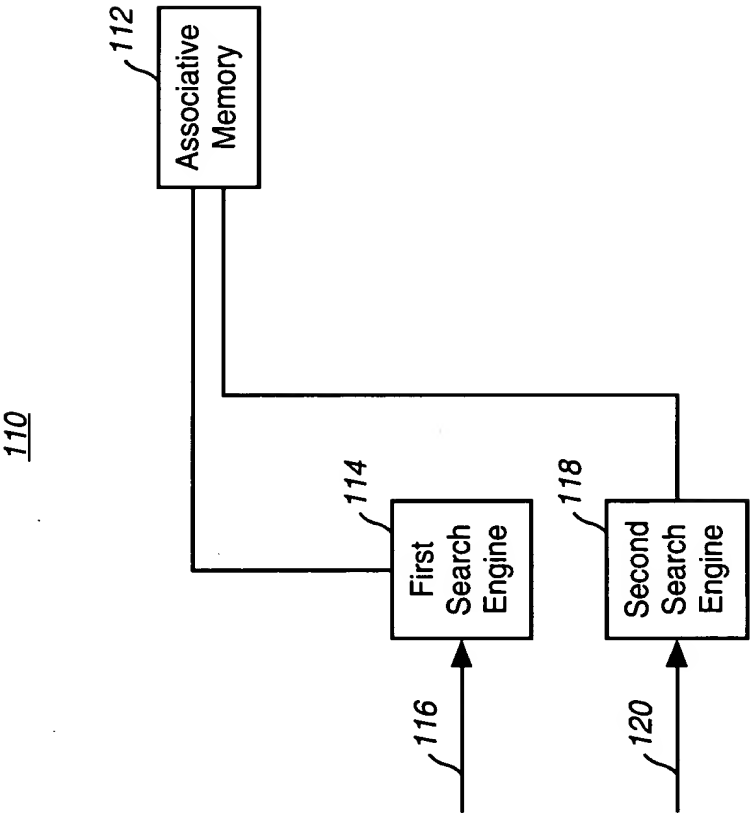
110
112
Associative Memory
114
First Search Engine
116
118
Second Search Engine
120

FIG. 7

T0600T" T6hE2660

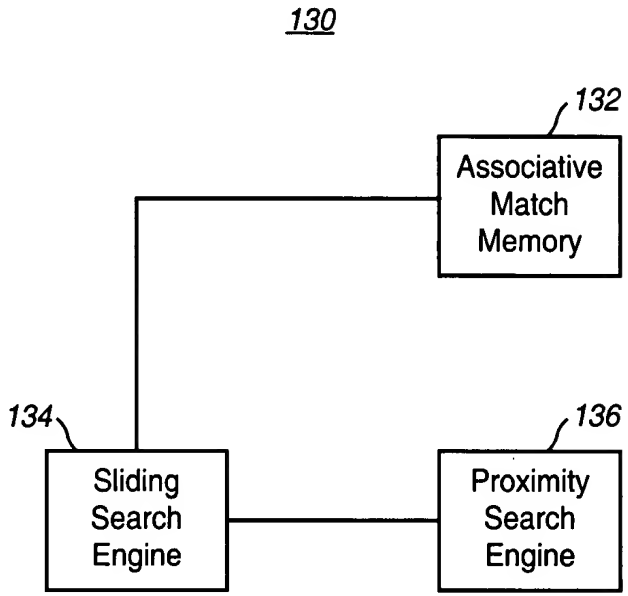

FIG. 8

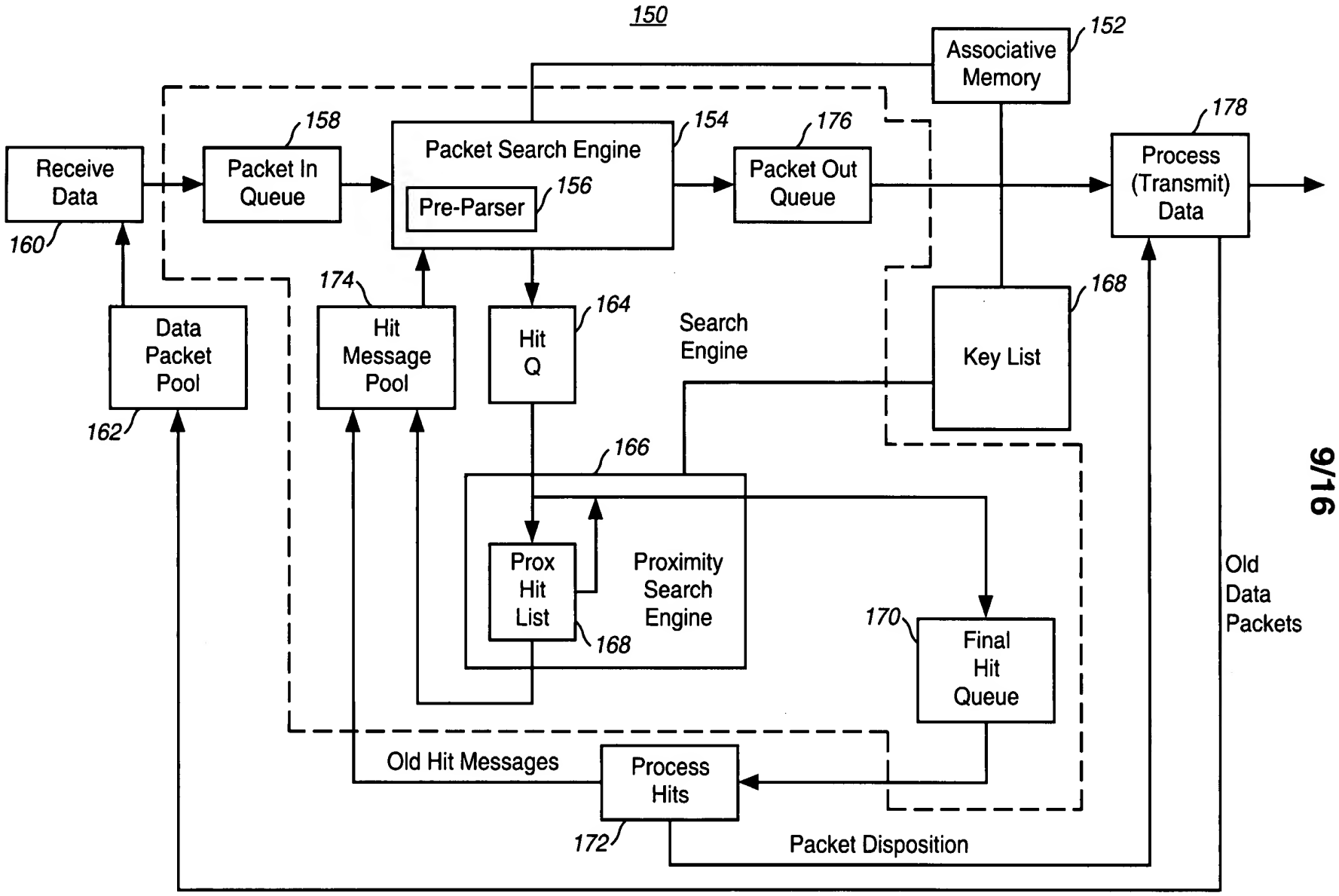
150
Associative Memory
152
Receive Data
160
Packet In Queue
158
Packet Search Engine
154
Pre-Parser
156
Packet Out Queue
176
Process (Transmit) Data
178
Data Packet Pool
162
Hit Message Pool
174
Hit Q
164
Search Engine
Key List
168
166
Prox Hit List
168
Proximity Search Engine
170
Final Hit Queue
Old Data Packets
Old Hit Messages
Process Hits
172
Packet Disposition

FIG. 9

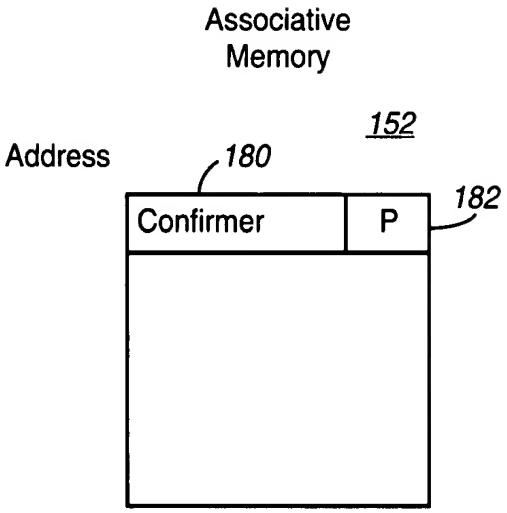

FIG. 10

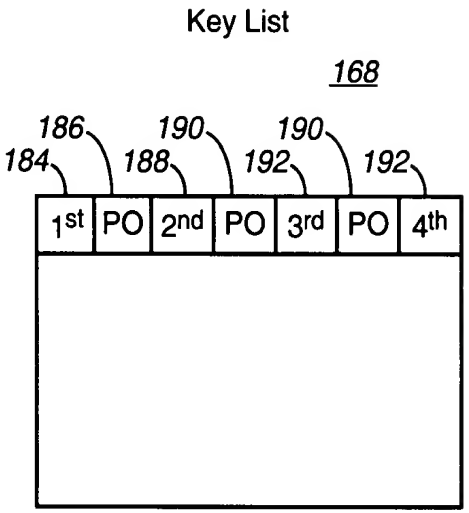

FIG. 11

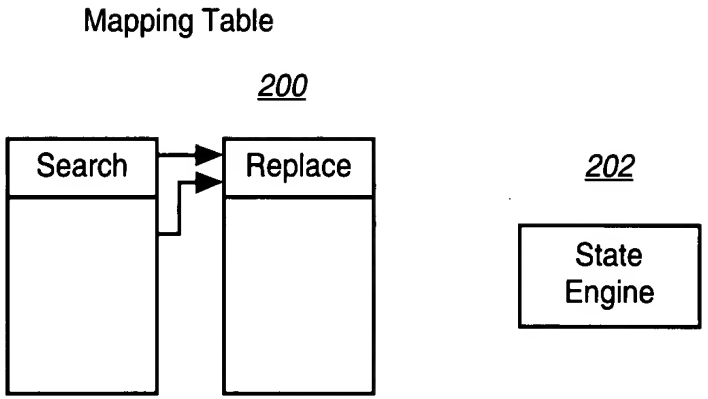

FIG. 12

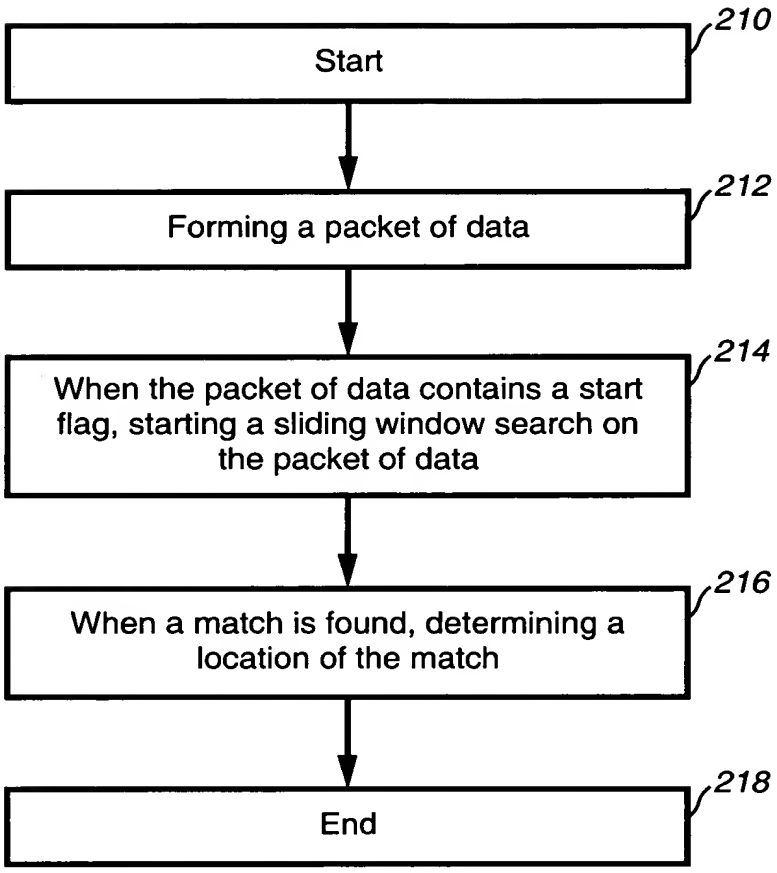

FIG. 13

Docket: 15656

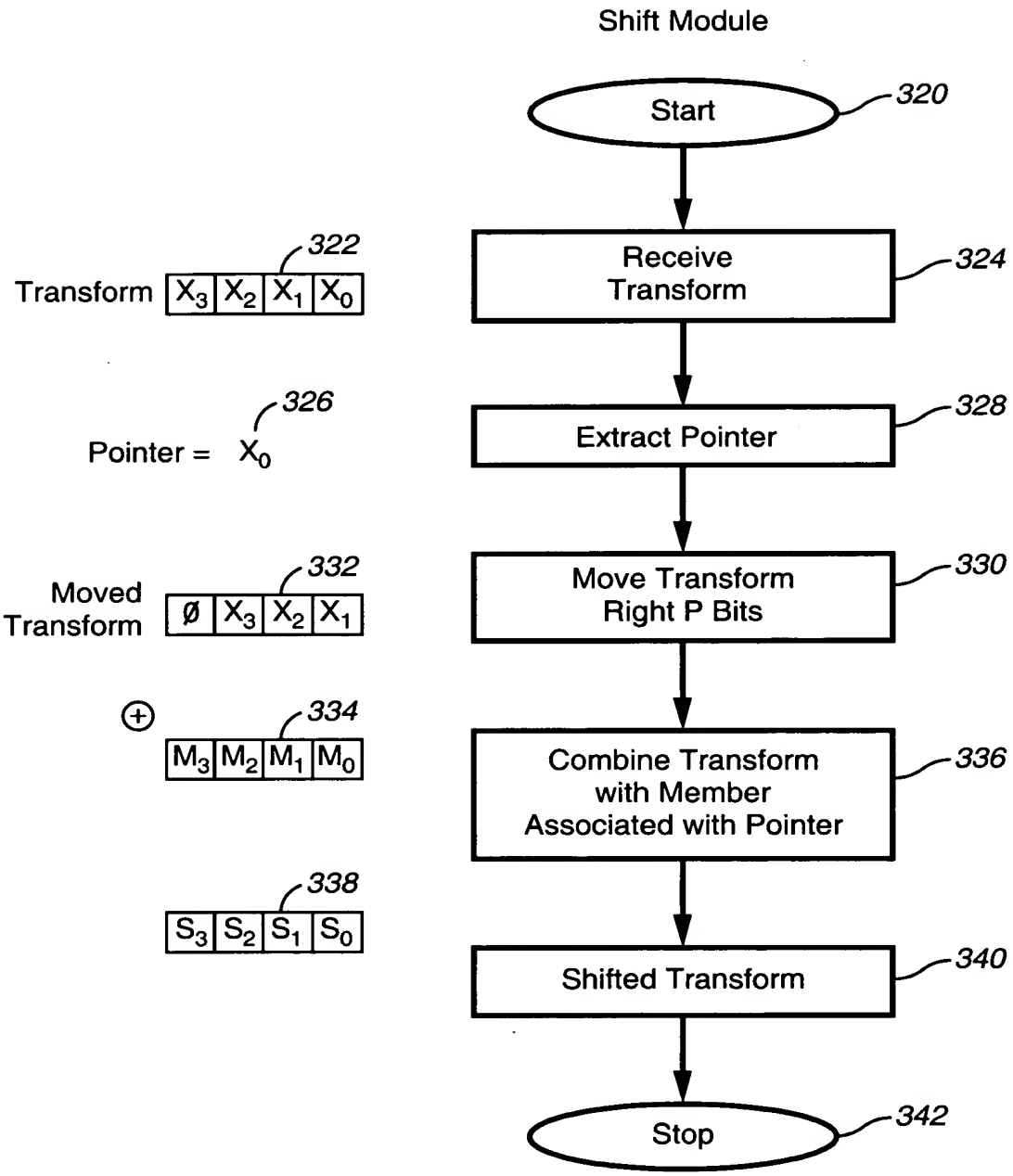
Shift Module
Start
320
Receive Transform
324
Extract Pointer
328
Move Transform Right P Bits
330
Combine Transform with Member Associated with Pointer
336
Shifted Transform
340
Stop
342
Transform
322
X3 X2 X1 X0
Pointer =
326
X0
Moved Transform
332
ø X3 X2 X1
334
M3 M2 M1 M0
338
S3 S2 S1 S0

FIG. 14

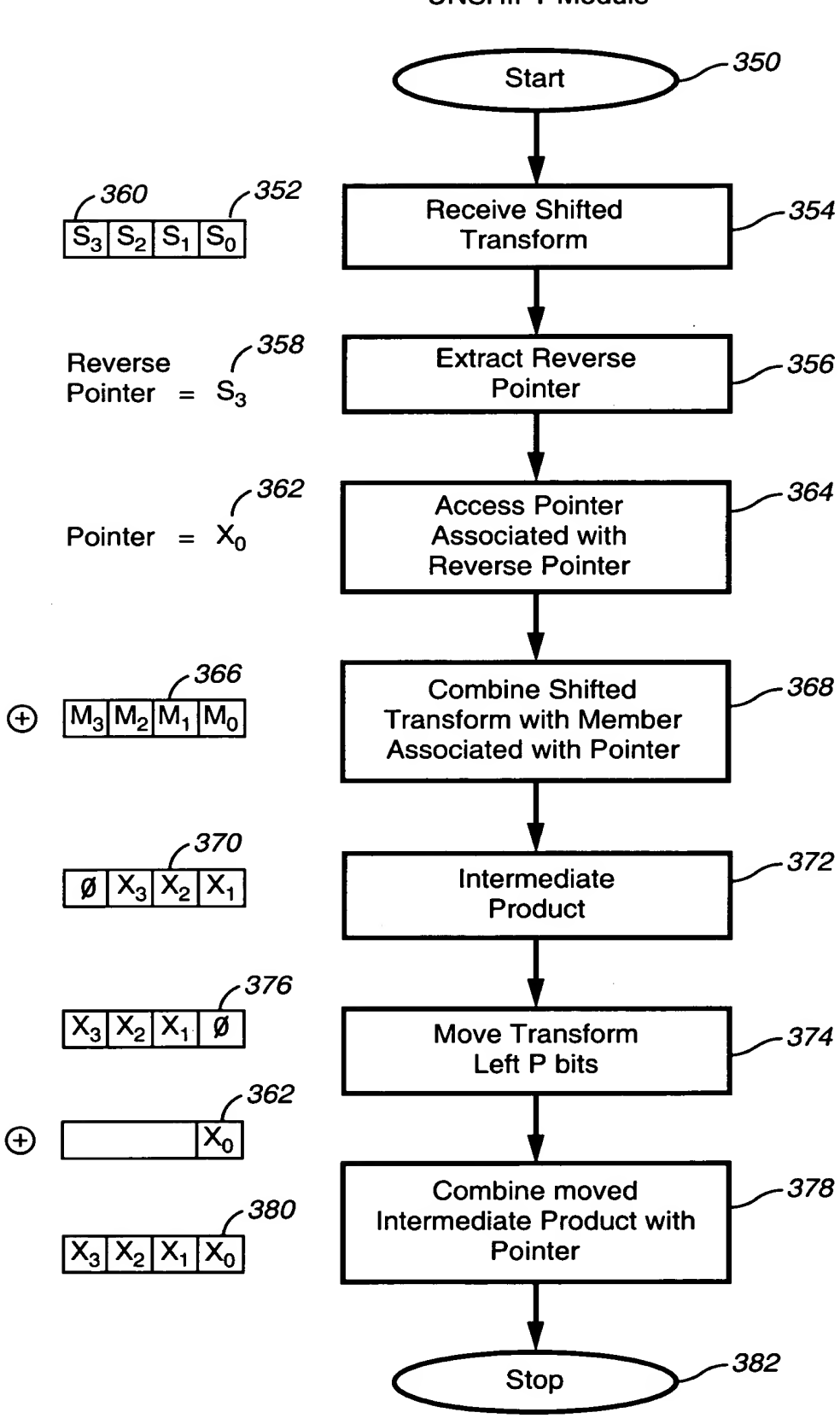

FIG. 15

Docket: FGT5760

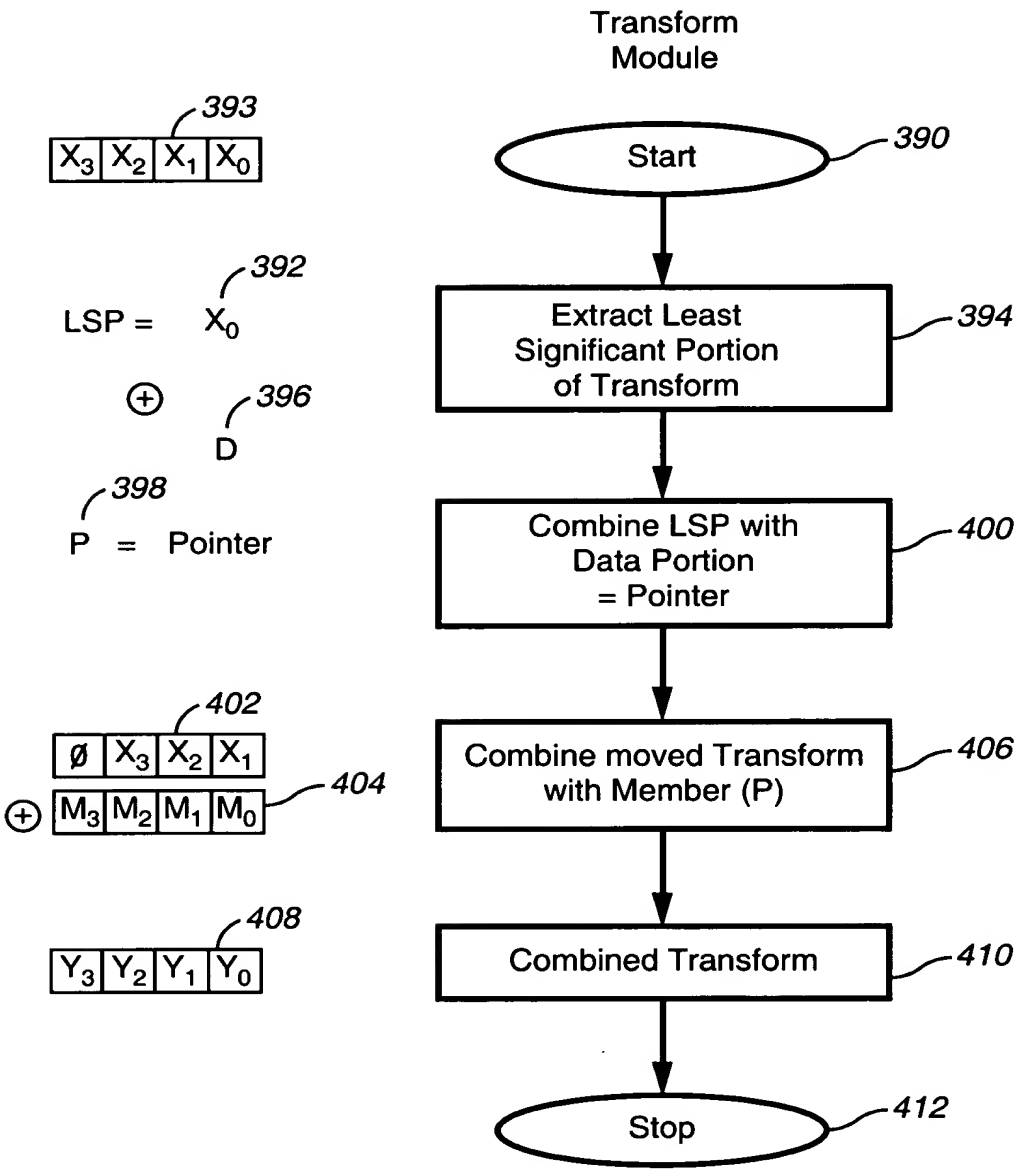
Transform Module
Start
390
Extract Least Significant Portion of Transform
394
Combine LSP with Data Portion = Pointer
400
Combine moved Transform with Member (P)
406
Combined Transform
410
Stop
412
393
X3 X2 X1 X0
392
LSP = X0
396
D
398
P = Pointer
402
Ø X3 X2 X1
404
M3 M2 M1 M0
408
Y3 Y2 Y1 Y0

FIG. 16

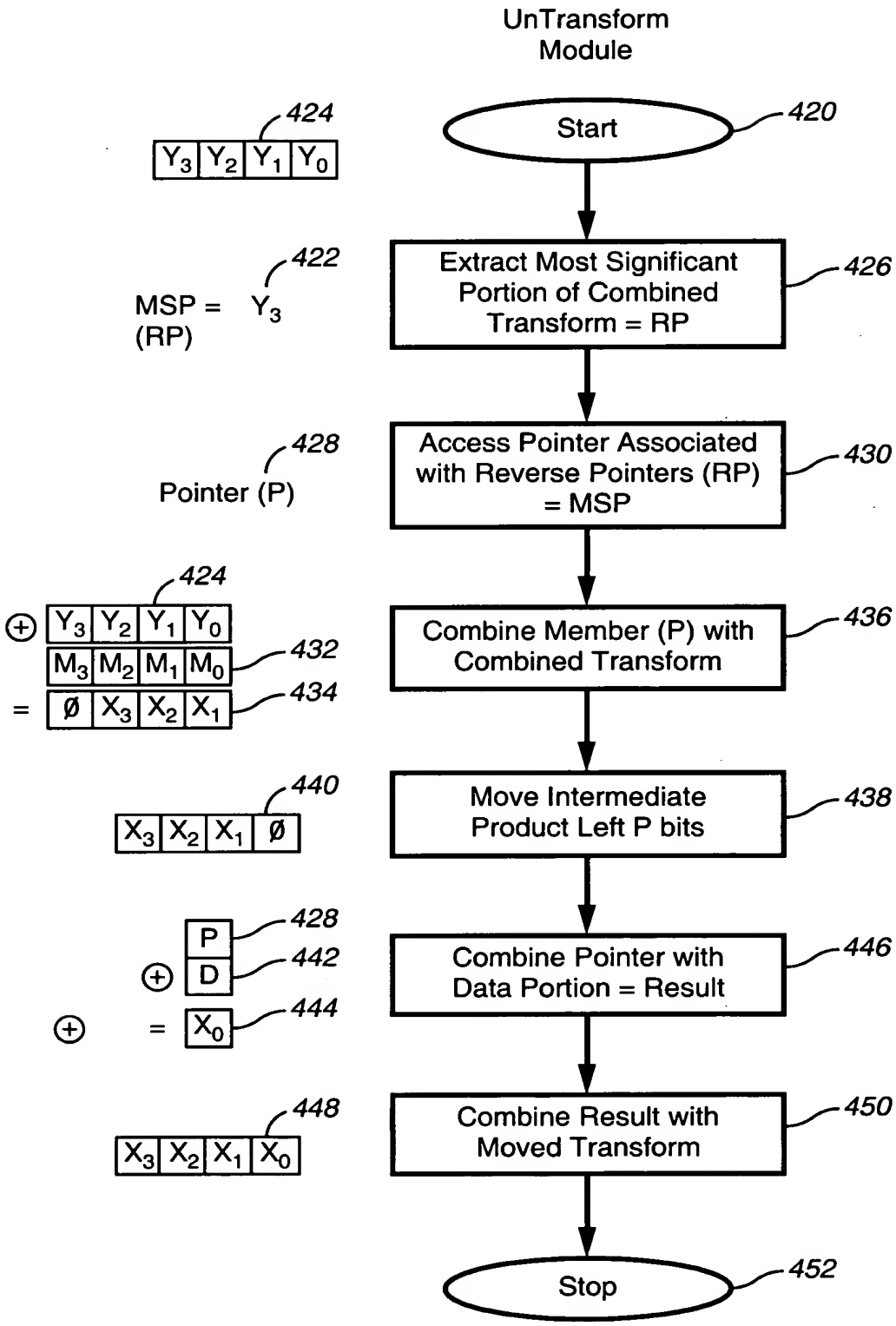
UnTransform Module
Start
420
Extract Most Significant Portion of Combined Transform = RP
426
Access Pointer Associated with Reverse Pointers (RP) = MSP
430
Combine Member (P) with Combined Transform
436
Move Intermediate Product Left P bits
438
Combine Pointer with Data Portion = Result
446
Combine Result with Moved Transform
450
Stop
452
424
Y3 Y2 Y1 Y0
422
MSP = (RP) Y3
428
Pointer (P)
424
Y3 Y2 Y1 Y0
M3 M2 M1 M0
432
Ø X3 X2 X1
434
440
X3 X2 X1 Ø
428
P
442
D
444
X0
448
X3 X2 X1 X0

FIG. 17

Transform Lookup Table:

00-	00000000	77073096	EE0E612C	990951BA	076DC419	706AF48F	E963A535	9E6495A3
08-	0EDB8832	79DCB8A4	E0D5E91E	97D2D988	09B64C2B	7EB17CBD	E7B82D07	90BF1D91
10-	1DB71064	6AB020F2	F3B97148	84BE41DE	1ADAD47D	6DDDE4EB	F4D4B551	83D385C7
18-	136C9856	646BA8C0	FD62F97A	8A65C9EC	14015C4F	63066CD9	FA0F3D63	8D0B0DF5
20-	3B6E20C8	4C69105E	D56041E4	A2677172	3C03E4D1	4B04D447	D20D85FD	A50AB56B
28-	35B5A8FA	42B2986C	DBBBC9D6	ACBCF940	32D86CE3	45DF5C75	DCD60DCF	ABD13D59
30-	26D930AC	51DE003A	C8D75180	BFD06116	21B4F4B5	56B3C423	CFBA9599	B8BDA50F
38-	2802B89E	5F058808	C60CD9B2	B10BE924	2F6F7C87	58684C11	C1611DAB	B6662D3D
40-	76DC4190	01DB7106	98D220BC	EFD5102A	71B18589	06B6B51F	9FBFE4A5	E8B8D433
48-	7807C9A2	0F00F934	9609A88E	E10E9818	7F6A0DBB	086D3D2D	91646C97	E6635C01
50-	6B6B51F4	1C6C6162	856530D8	F262004E	6C0695ED	1B01A57B	8208F4C1	F50FC457
58-	65B0D9C6	12B7E950	8BBEB8EA	FCB9887C	62DD1DDF	15DA2D49	8CD37CF3	FBD44C65
60-	4DB26158	3AB551CE	A3BC0074	D4BB30E2	4ADFA541	3DD895D7	A4D1C46D	D3D6F4FB
68-	4369E96A	346ED9FC	AD678846	DA60B8D0	44042D73	33031DE5	AA0A4C5F	DD0D7CC9
70-	5005713C	270241AA	BE0B1010	C90C2086	5768B525	206F85B3	B966D409	CE61E49F
78-	5EDEF90E	29D9C998	B0D09822	C7D7A8B4	59B33D17	2EB40D81	B7BD5C3B	C0BA6CAD
80-	EDB88320	9ABFB3B6	03B6E20C	74B1D29A	EAD54739	9DD277AF	04DB2615	73DC1683
88-	E3630B12	94643B84	0D6D6A3E	7A6A5AA8	E40ECF0B	9309FF9D	0A00AE27	7D079EB1
90-	F00F9344	8708A3D2	1E01F268	6906C2FE	F762575D	806567CB	196C3671	6E6B06E7
98-	FED41B76	89D32BE0	10DA7A5A	67DD4ACC	F9B9DF6F	8EBEEFF9	17B7BE43	60B08ED5
A0-	D6D6A3E8	A1D1937E	38D8C2C4	4FDFF252	D1BB67F1	A6BC5767	3FB506DD	48B2364B
A8-	D80D2BDA	AF0A1B4C	36034AF6	41047A60	DF60EFC3	A867DF55	316E8EEF	4669BE79
B0-	CB61B38C	BC66831A	256FD2A0	5268E236	CC0C7795	BB0B4703	220216B9	5505262F
B8-	C5BA3BBE	B2BD0B28	2BB45A92	5CB36A04	C2D7FFA7	B5D0CF31	2CD99E8B	5BDEAE1D
C0-	9B64C2B0	EC63F226	756AA39C	026D930A	9C0906A9	EB0E363F	72076785	05005713
C8-	95BF4A82	E2B87A14	7BB12BAE	0CB61B38	92D28E9B	E5D5BE0D	7CDCEFB7	0BDBDF21
D0-	86D3D2D4	F1D4E242	68DDB3F8	1FDA836E	81BE16CD	F6B9265B	6FB077E1	18B74777
D8-	88085AE6	FF0F6A70	66063BCA	11010B5C	8F659EFF	F862AE69	6168FFD3	166CCF45
E0-	A00AE278	D70DD2EE	4E048354	3903B3C2	A7672661	D06016F7	4969474D	3E6E77DB
E8-	AED16A4A	D9D65ADC	40DF0B66	37D83BF0	A9BCAE53	DEBB9EC5	47B2CF7F	30B5FFE9
F0-	BDB0F21C	CABAC28A	53B39330	24B4A3A6	BAD03605	CDD70693	54DE5729	23D967BF
F8-	B3667A2E	C4614AB8	5D681B02	2A6F2B94	B40BBE37	C30C8EA1	5A05DF1B	2D02EF8D

FIG. 18

Transform Translation Table:

00-	00	41	C3	82	86	C7	45	04	4D	0C	8E	CF	CB	8A	08	49
10-	9A	DB	59	18	1C	5D	DF	9E	D7	96	14	55	51	10	92	D3
20-	75	34	B6	F7	F3	B2	30	71	38	79	FB	BA	BE	FF	7D	3C
30-	EF	AE	2C	6D	69	28	AA	EB	A2	E3	61	20	24	65	E7	A6
40-	EA	AB	29	68	6C	2D	AF	EE	A7	E6	64	25	21	60	E2	A3
50-	70	31	B3	F2	F6	B7	35	74	3D	7C	FE	BF	BB	FA	78	39
60-	9F	DE	5C	1D	19	58	DA	9B	D2	93	11	50	54	15	97	D6
70-	05	44	C6	87	83	C2	40	01	48	09	8B	CA	CE	8F	0D	4C
80-	95	D4	56	17	13	52	D0	91	D8	99	1B	5A	5E	1F	9D	DC
90-	0F	4E	CC	8D	89	C8	4A	0B	42	03	81	C0	C4	85	07	46
A0-	E0	A1	23	62	66	27	A5	E4	AD	EC	6E	2F	2B	6A	E8	A9
B0-	7A	3B	B9	F8	FC	BD	3F	7E	37	76	F4	B5	B1	F0	72	33
C0-	7F	3E	BC	FD	F9	B8	3A	7B	32	73	F1	B0	B4	F5	77	36
D0-	E5	A4	26	67	63	22	A0	E1	A8	E9	6B	2A	2E	6F	ED	AC
E0-	0A	4B	C9	88	8C	CD	4F	0E	47	06	84	C5	C1	80	02	43
F0-	90	D1	53	12	16	57	D5	94	DD	9C	1E	5F	5B	1A	98	D9

FIG. 19